

CLAIMS

What is claimed is:

1 1. A multiple data transport method for enabling a conditional access module
2 to handle any of a plurality of data transport stream formats, said multiple transport
3 method comprising:

4 qualifying received data bytes according to their positions and values within a
5 data packet; and

6 attaching a multi-bit tag to each received data byte, such tag containing
7 information required for further processing of the byte.

8 2. The multiple transport method according to claim 1 further comprising
9 examining each byte to determine if it is a header byte.

1 3. The multiple transport method according to claim 2 further comprising
2 determining whether the byte contains channel identification data.

1 4. The multiple transport method according to claim 3, including performing
2 an adaptation field test.

1 5. The multiple transport method according to claim 4 including determining
2 whether the byte is a payload byte.

1 6. The multiple transport method according to claim 5 including determining
2 whether the data in the byte is scrambled or clear.

1 7. The multiple transport method according to claim 1 including producing a
2 stream of output bytes which are no longer dependent on the particular transport
3 stream format in which they arrived at the conditional access module.

1 8. A multiple data transport system for enabling a conditional access module to
2 handle any of a plurality of data transport stream formats, said multiple transport
3 system comprising:

4 a qualification mechanism for qualifying received data bytes according to their
5 positions and values within a data packet; and

6 a tagging mechanism for applying a multi-bit tag to each received data byte,
7 such tag containing information required for further processing of the byte.

1 9. The multiple transport method according to claim 8 including a mechanism
2 for examining each byte to determine if it is a header byte.

1 10. The multiple transport system according to claim 9 further comprising a
2 mechanism for determining whether the byte contains channel identification data.

1 11. The multiple transport system according to claim 10 including performing
2 an adaptation field test.

1 12. The multiple transport system according to claim 11 including a
2 mechanism for determining whether the byte is a payload byte.

1 13. The multiple transport system according to claim 12 including a
2 mechanism for determining whether the data in the byte is scrambled or clear.

1 14. The multiple transport system according to claim 8 including a mechanism
2 producing a stream of output bytes which are not dependent on the particular transport
3 stream format in which they arrived at the conditional access module.

1 15. The multiple transport system according to claim 8 configured to receive
2 input transport streams formatted according to MPEG, DSS and ATM transport stream
3 formats.

1 16. The multiple transport system according to claim 8 configured to receive
2 packet-type and cell-type transport structures.

1 17. A multiple data transport mechanism capable of receiving a plurality of
2 different transport stream formats, such mechanism comprising:

3 a qualifying mechanism for receiving and qualifying incoming data bytes
4 according to their positions and values in their plural-byte data packets; and

5 a tagging mechanism for assigning a plural-bit tag to each data byte, such tag
6 having a value determined by the results of the qualifying process performed by the
7 qualifying mechanism.

1 18. A method for handling any of a plurality of transport stream formats, said
2 method comprising:

3 qualifying received data bytes according to their positions and values; and
4 attaching a tag to each qualified data byte.

1 19. A digital broadband receiving system comprising:

2 a plurality of receivers configured for communication with one or more

3 broadband signal transmission sources producing signals in a transport stream format
4 such as, for example, MPEG format, DSS format, or ATM format; and

5 a security mechanism connected to each of said plurality of receivers, said
6 security mechanism configured to select one or more of the received signal transport
7 streams and to remove the network distribution security layers therefrom.

20. The digital broadband receiving system according to claim 19, wherein
said network security mechanism applies content protection to any of the signal
streams that require it.

21. The digital broadband receiving system according to claim 19 further
including a plurality of decoders which are configured to select one or more of the
signal streams and to decode each selected stream to recreate desired video, audio and
data signals which are, in turn, supplied to one or more display units or one or more
recording units.

22. The digital broadband receiving system according to claim 19 wherein said
security mechanism is configured to examine received signals to determine their types.

23. The digital broadband receiving system according to claim 22 wherein said

2 security mechanism is configured to control descrambling of received signals.

1 24. A set-top system comprising:

2 a plurality of receivers configured for communication with one or more
3 broadband signal transmission sources which provide signal information subject to
4 predetermined network distribution security layers; and

5 a security mechanism connected to each of said plurality of receivers, said
6 security mechanism being configured to remove the network distribution security
7 layers from the received signals, wherein said plurality of receivers and said security
8 mechanism are located within a set-top structure.

1 25. A set-top system according to claim 24 wherein said security mechanism is
2 configured to be renewable and removable from said set-top structure.

1 26. The set-top system according to claim 24 wherein said security mechanism
2 is a conditional access module which is a removable plug-in type element which is
3 adapted to be plugged into a cooperating receptacle or socket in a host set-top box.

1 27. The set-top system according to claim 24 wherein the set-top box functions
2 are located inside a television receiver cabinet which houses a display unit or picture

3 tube.

1 28. The set-top system according to claim 24 wherein said security mechanism
2 is adapted to plug into a cooperating receptacle.

1 29. A communication system comprising:
2 a plurality of receivers configured for communication with one or more
3 broadband signal transmission sources producing signals in a selected transport stream
4 format; and
5 a security mechanism connected to each of said plurality of receivers, said
6 security mechanism being configured to select one or more of the received signal
7 transport streams and to remove the network distribution security restrictions
8 therefrom.

1 30. The communication system according to claim 29 wherein said plurality of
2 receivers includes an in-band channel and an out-of-band channel, which are adapted
3 to receive incoming signals from a remote broadcasting station.

1 31. The communication system according to claim 30 wherein said in-band
2 and out-of-band channels are connected with a filter bank configured to detect

3 predefined digital patterns within received signals and to react thereto for establishing
4 connections with appropriate ones of predetermined software applications.

1 32. The communication system according to claim 29 further including a smart
2 card channel configured to enable communications with at least a single applications.

1 33. A digital signal receiving system comprising:
2 an input signal channel for receiving a digital data stream which carries digital
3 television signals, wherein the data stream is transmitted in one of a plurality of
4 different digital transmission formats;
5 transmission format converter circuitry for converting the incoming data stream
6 into a transmission format independent set of digital television signals;
7 and a television display mechanism for converting the transmission format
8 independent digital television signals into a visual image.

1 34. A digital signal receiving system in accordance with Claim 33 wherein:
2 the transmission format converter circuitry includes a qualifying mechanism for
3 receiving and qualifying incoming data bytes according to their positions and values in
4 their plural-byte data packets;
5 the transmission format converter circuitry includes a tagging mechanism for

6 assigning a plural-bit tag to each data byte, such tag having a value determined by the
7 results of the qualifying process performed by the qualifying mechanism;

8 and the receiving system includes signal processing circuitry responsive to the
9 tagged data bytes for supplying television signals to the television display mechanism.

1 35. A digital signal receiving system in accordance with Claim 34 wherein the
2 qualifying mechanism comprises a parser mechanism for analyzing data bytes and
3 determining their relationships to other data bytes in a plural-byte data packet.

4 36. A digital signal receiving system comprising:

5 at least two input signal channels for receiving at least two digital data streams,
6 one of which carries digital television signals and the other of which carries digital
7 message signals, wherein each data stream is transmitted in one of a plurality of
8 different transmission formats;

9 transmission format converter circuitry for converting each incoming data
10 stream into a common transmission format independent set of signals;

11 a television display mechanism for converting the transmission format
independent television signals into a visual image;

and a message processing mechanism for converting the transmission format
independent message signals into user perceivable messages.

1 37. A digital signal receiving system in accordance with Claim 36 wherein the
2 transmission format converter circuitry comprises:

3 a first qualifying mechanism for receiving and qualifying incoming television
4 signal bytes according to their positions and values in their plural-bit data packets;

5 a first tagging mechanism for assigning a plural-bit tag to each television signal
6 byte, such tag having a value determined by the results of the qualifying process
7 performed by the first qualifying mechanism;

8 first signal processing circuitry responsive to the tagged television signal bytes
9 for supplying television signals to the television display mechanism;

10 a second qualifying mechanism for receiving and qualifying incoming message
11 signal bytes according to their positions and values in their plural-bit data packets;

12 a second tagging mechanism for assigning a plural-bit tag to each message
13 signal byte, such tag having a value determined by the results of the qualifying process
14 performed by the second qualifying mechanism;

15 and second signal processing circuitry responsive to the tagged message signal
16 bytes for supplying message signals to the message processing mechanism.

1 38. A digital signal receiving system in accordance with Claim 37 wherein
2 each qualifying mechanism comprises a parser mechanism for analyzing data bytes

and determining their relationships to other data bytes in a plural-byte data packet.

39. A digital signal receiving system for receiving a plurality of different digital data transport stream formats, such system comprising:

a qualifying mechanism for receiving and qualifying incoming data bytes according to their positions and values in their plural-byte data packets;

a tagging mechanism for assigning a plural-bit tag to each data byte, such tag having a value determined by the results of the qualifying process performed by the qualifying mechanism;

and a signal processing mechanism responsive to the tagged data bytes for producing digital information signals.

40. A multiple data transport mechanism for receiving a plurality of different digital data transport stream formats, such mechanism comprising:

a qualifying mechanism for receiving and qualifying incoming data bytes according to their positions and values in their plural-byte data packets;

and a tagging mechanism for assigning a plural-bit tag to each data byte, such tag having a value determined by the results of the qualifying process performed by the qualifying mechanism.

1 41. A multiple data transport mechanism in accordance with Claim 40
2 wherein the qualifying mechanism comprises a parser mechanism for analyzing data
3 bytes and determining their relationships to other data bytes in a multi-byte data
4 packet.

1 42. A multiple data transport mechanism for receiving a plurality of different
2 digital data transport stream formats wherein data is conveyed in multi-byte data
3 packets with each packet having a plural-byte header field and a plural-byte payload
4 field, such mechanism comprising:

5 a first testing mechanism for examining each incoming data byte and
6 determining whether the byte is a header byte or a payload byte;

7 a first tagging mechanism coupled to the first testing mechanism for assigning
8 header byte indicative tags to header field data bytes and payload indicative tags to
9 payload field data bytes;

10 a second testing mechanism for examining each incoming data byte and
11 determining whether the data is scrambled;

12 a second tagging mechanism coupled to the second testing mechanism for
13 assigning a scramble condition tag bit to each data byte and giving such bit one binary
14 value if the data is scrambled and the other binary value if the data is not scrambled;

15 and signal transfer circuitry for transferring each data byte and its assigned tag

16 bits to a data processing mechanism for producing usable digital information.